AMENDMENTS TO THE SPECIFICATION

Page 2, lines 4-14, amend the paragraph as follows:

The German Patent DE 41 01 473 A1 discloses a probe head for liquid NMR spectroscopy, which ~~p ermits a n a utomated~~ permits an automated serial ~~m easurement o f s everal s amples~~ measurement of several samples. In the proposed probe head, a sample tube is clamped, which is open on both sides and which is connected to feed lines for the inflow and outflow of the liquid sample into the probe head. Due to these feed lines it is possible to supply intermittently defined volumes of a sample liquid in the so-called stop-flow technique. A continuous operation of the probe head is equally possible according to that prior art document. Due to an appropriate clamping device for the sample tube it is possible to replace the tube very rapidly so that the probe head can be operated with sample tubes having different wall thicknesses or different inside volumes, without the need to replace the probe head completely.

Page 2, line 27 to page 3, line 7, amend the paragraph as follows:

The German Patent DE 42 34 544 C2 discloses a sample-changing system for liquid NMR spectroscopy, wherein

a solenoid coil is proposed, too, as emitting and receiving coil, with the axis of the coil and of the sample tube being disposed orthogonally on the bore of the superconducting base field solenoid in the probe head. In the probe head of that device, the sample tube is equally connected to appropriate feed lines for the inflow and outflow of the liquid sample material so that measurement can be carried out in the stop-flow mode or with a continuous flow. In view of the ~~m inimum~~ minimum sample volume and the ~~m easurement o f~~ measurement of different samples with this probe head, too, the same problems occur as those mentioned in relation to the afore-discussed prior art reference. In that system, the entire probe head must be exchanged for the measurement of samples requiring a different inside ~~d iameter~~ diameter of the sample tube. ~~A n~~ An automated ~~m easurement~~ measurement of solid samples is not possible with these two probe heads.

Page 3, lines 9-15, amend the paragraph as follows:

Starting out from that prior art, one problem underlying the present invention consists ~~i n p roviding a p robe h ead~~ in providing a probe head as ~~w ell a s~~ well as a method of ~~o perating t he~~ operating the probe head, which permit the automated serial measurements of different samples in a simple manner, even with very small sample

volumes. Moreover, the probe head should also permit the automated measurement of solid samples and, according to a particular embodiment, a simple optimisation of the charging factor with different sample volumes.

Pages 3, line 23 to page 4, line 7, amend the paragraph as follows:

In a manner known per se, the present probe head consists of a support body carrying a solenoid coil as measuring coil and of a feed line leading to the solenoid coil, via which a sample material can be introduced into a measuring volume surrounded by the solenoid coil. ~~T he s upport~~ The support body may have an elongate configuration, for instance, in which case the coil axis of the solenoid coil is preferably ~~o riented o rthogonally o n t he l ongitudinal a xis o f t he s upport b ody~~ oriented orthogonically on the longitudinal axis of the support body. ~~I n t he~~ In the present probe head, the feed line leading to the solenoid coil is configured for receiving and conveying sample containers. It must therefore present a sufficient inside diameter for receiving the sample containers. Such a feed line may have a tubular configuration, for instance, is passed through the solenoid coil and consists of an NMR material at least inside the solenoid coil. The sample to be measured is then charged into a suitable sample

container, is conveyed in the feed line up to the measuring volume, is measured there and is then conveyed out of the measuring volume again. The sample containers may be so selected that they receive only the minimum sample quantity that is required for the measurement. The diameter of the sample container is adapted to the inside diameter of the feed line in order to allow for unproblematic conveyance inside the feed line.

Page 4, lines 9-14, amend the paragraph as follows:

Due to this configuration of the probe head, an automated serial measurement of any sample materials whatsoever is possible in a simple manner. For instance, the sample containers may be charged with liquid, solid and also gaseous sample materials and these samples can be measured in an automated manner. The use of sample containers short along the supply direction ~~p ermits~~ permits also the measurement of very small sample volumes.

Page 5, lines 4-13, amend the paragraph as follows:

The feed ~~l ine i s p referably c onnected t o an a ppropriate c onveying m echanism~~ line is preferably connected to an appropriate conveying mechanism that permits the transport of the sample containers in steps in the feed line. To ~~t his e nd~~ this end, for instance, a plurality ~~o f~~

~~s ample c ontainers~~ of sample containers may ~~b e i ntroduced i n~~ be introduced in succession into an appropriate collecting zone of the feed line prior to a measurement. This succession of sample containers is then conveyed in steps by means of the conveying mechanism in such a way that one of the sample containers is in the measuring volume at each step and can be measured there. In the next step, the respective sample container already measured is conveyed out of the measuring volume whilst the next sample container is introduced by the conveying movement into the measuring volume.

Page 7, lines 16-28, amend the paragraph as follows:

The sample materials are charged into sample containers 10 consisting, in the present example, of short small tubes of a material not interfering with the NMR measurement, which can be closed in a water-tight and air-tight manner by means of a plug 11 made of Teflon, for instance. In the present example, a tube 12 of appropriate diameter is passed through the solenoid coil for conveying these sample containers 10, in which tube the sample containers 10 can be conveyed. This configuration permits the introduction of a great number of sample containers 10 with different samples into the tube and the conveyance of the sample container 10 out of the solenoid coil 7 by means

of an air flow after each measurement of a specific sample, i.e. a sample in one of the sample containers 10, as well as the introduction of the next sample in the respective sample container 10. It is also possible to use a liquid as conveying agent, for instance in an approach to achieve the matching of susceptibility in the measuring volume 9.

Page 7, line 30 to page 8, line 5, amend the paragraph as follows:

Compared against conventional sample exchangers, wherein individual small NMR tubes are vertically introduced into the NMR probe head, this possibility of automatic sample change incurs substantially lower costs and is sturdier. In particular, several sample containers 10 with different samples can be introduced into an appropriate collector section 14 of the tube 12 with the present configuration of the probe head or the present method, respectively, from which collector section the sample containers 10 are then conveyed in steps through the measuring volume 9. The orientation of the magnetic field is indicated by the arrow B_0 in Fig. 3.

Page 8, lines 7-15, amend the paragraph as follows:

Fig. 3 illustrates an example of the extension of the tube 12 of the probe head 4, with the solenoid coil 7

being roughly indicated at the ~~f ront~~ front end of ~~t he~~ the probe head 4. The tube 12 is connected to a conveyor device 13 that conveys the sample containers 10, which are initially introduced in succession in a collector section 14 between the conveyor device 13 and the probe head 4, for measurement through the measuring volume of the probe head 4. The probe head 4 need not be taken out of the bore 3 of the superconducting base field solenoid 1 to this end. The samples already measured are output into an appropriate collector station 15 at the other end of the tube 12. The orientation of the magnetic field is indicated by the arrow B_0 in Fig. 3.